

RESEARCH

High-energy smoothies for patients in nursing homes

Siv Janne C. Salomonsen

Masterstudent
Det helsevitenskapelige fakultet, Universitetet i Stavanger

Astrid Karin Berland

Dosent
Avdeling for helsefag, Høgskolen Stord, Haugesund

Signe Berit Bentsen

Professor
Det helsevitenskapelige fakultet, Universitetet i Stavanger

Energirike smoothies

Eldre

Sykehjem

Underernæring

Nattfaste

Sykepleien Forskning 2017;12(62986):e-62986
DOI: 10.4220/Sykepleief.2017.62986en

Summary

Background: Elderly patients in nursing homes are at risk of becoming undernourished, and it has been found that high-energy smoothies can serve as a supplement to high-energy and nutritious foods in order to prevent and treat undernutrition.

Objective: To explore the experiences of health personnel in relation to high-energy smoothies for elderly patients in nursing homes.

Method: The study includes three qualitative focus group interviews of health personnel from two different nursing homes.

Results: Some patients experienced heartburn, obstipation and nausea after drinking smoothies. Patients who were undernourished did not gain weight, and it is uncertain whether the patients consumed more fruit during the period they were given smoothies. The informants agreed that smoothies gave the patients energy, which could lead to some individuals becoming over-active. To control the intake of energy, nutrition and fluids, it is necessary to have individual nutrition and drink lists.

Conclusion: Smoothies can cause heartburn, nausea and constipation, and those who were undernourished did not gain weight. Preparing individually adapted smoothies will help to ensure that wishes and needs for fluids and nutrients are safeguarded.

Undernutrition arises when the intake of energy and nutrients does not satisfy nutritional needs, which may affect the person's state of health (1). According to the World Health Organization, good health is not only the absence of sickness and injury but also the perception of physical, mental and social wellbeing (2). The incidence of undernutrition in elderly patients in nursing homes varies from between 10 and 60 per cent (1, 3, 4).

Undernutrition occurs for a variety of reasons. One reason may be the ageing process, which is often accompanied by poor appetite and reduced food intake (4, 5). The overnight fast is the time between the last meal of the evening and the first meal of the morning (6). Earlier studies show that an overnight fast exceeding eleven hours increases the risk of undernutrition and reduced body weight (7). In addition, various illness processes may result in an increased energy need and low food intake, which in turns leads to undernutrition. The patient may then be caught in a vicious circle of illness and consequent low food intake, resulting in more illness, lower food intake and undernutrition (3, 5, 8).

Overestimating food intake

It has been shown that health personnel and the patients themselves overestimate food intake and thereby assume that the intake of nutrients is satisfactory (9). Earlier research shows that it is easier to prevent undernutrition than to treat those who are already undernourished (10). Normally, nurses have the main responsibility for ensuring that the diet of elderly patients in nursing homes is adapted to their nutritional needs, but close cooperation with other health personnel such as health workers, doctors and nutritionists is essential in securing an individually adapted diet (6, 9, 11, 12).

«Routine use of energy-boosting smoothies may be an alternative way of satisfying nutritional needs.»

Frequent meals and energy-boosting and nutritious food are ways of ensuring a customised diet (5, 13, 14). Routine use of high-energy smoothies may be an alternative way of satisfying nutritional needs (9, 15, 16). Smoothies are a nutritional drink consisting of, for example, fresh berries, fruit, vegetables, juice, sugar, yoghurt or ice cream puréed in a blender (17, 18).

In 2012, a white paper called attention to the importance of safeguarding the diet of elderly patients in nursing homes (19). Furthermore, the Norwegian Directorate of Health prepared guidelines for preventing and treating undernutrition among the elderly in nursing homes that recommended high-energy food in combination with nutritional drinks such as smoothies for those at risk of developing undernutrition (1). The Norwegian Directorate of Health has also provided grant funding to encourage Norwegian municipalities to comply with the requirements in the guidelines (1).

In this connection, the pilot project 'Reduced overnight fasting for residents in nursing homes' was tested at two nursing homes in Rogaland in 2014. The aim of the pilot project was to reduce the length of overnight fasting and to prevent and treat undernutrition in elderly patients in the nursing home. In connection with the project, all the patients were offered a high-energy smoothie in the evening and when they woke up during the night. The smoothie was based on dairy products that were rich in protein, fat and carbohydrates, and sugar, fruit and berries were added to boost the intake of energy, vitamins and minerals (18). The objective of this study was to explore the experiences of health personnel in relation to high-energy smoothies for elderly patients in nursing homes.

Method

The study adopts a qualitative, exploratory approach, and we conducted three focus group interviews (20).

Sample

We recruited participants to the study from two nursing homes in Rogaland, where the pilot project 'Reduced overnight fasting for residents in nursing homes' had been tested. The coordinator at the nursing homes carried out a strategic selection (20) of participants based on the following inclusion criteria: health personnel who had participated in the implementation of the pilot project and who were ≥ 18 years of age.

We included 16 health personnel altogether. Four of these failed to attend. The sample in the study therefore included 12 health personnel (75 per cent). Table 1 presents a description of the participants.

Table 1: Characteristics of informants who took part in the study (n = 12)

| | Focus group | | |
|------------------------------------|----------------|----------------|----------------|
| | 1 | 2 | 3 |
| Nursing home | Nursing home 1 | Nursing home 2 | Nursing home 2 |
| Participants (number) | 3 | 5 | 4 |
| Gender (number) | | | |
| Women | 3 | 5 | 4 |
| Age (years) | 30–60+ | 20–60+ | 20–50+ |
| Education (number) | | | |
| Nurses | - | 2 | - |
| Social educators | - | 1 | - |
| Health workers* | 3 | 2 | 4 |
| Work experience in years (average) | 11 | 7 | 8 |
| Drop out (number) | 2 | 2 | 0 |

* Auxiliary nurses, care workers, child care and youth workers

Data collection

We collected data from three focus group interviews. We conducted one of these interviews at one nursing home, and the other two at the other one. The interviews lasted from between 1.5 and 2 hours, and the first author was the moderator. An audio recording was made of all the interviews. The subject of the group discussions was high-energy smoothies for elderly patients in nursing homes. The moderator attempted to explore the informants' experiences with high-energy smoothies, and asked follow-up questions when it was natural to do so. We also made provision for everyone to have their say in the discussions, and for everyone to be heard (20).

Ethical considerations

Prior to conducting the study, all participants received written and oral information. We also informed participants that we would treat all information anonymously and confidentially, that participation was voluntary and that they could withdraw from the study at any point without having to give a reason. We also obtained their consent to tape the conversations. Before the study began, the heads of department at the nursing homes gave their consent to our conducting the study. The Norwegian Centre for Research Data (NSD) approved the study.

Analysis

We analysed the transcribed interviews in line with Graneheim and Lundman's qualitative content analysis method (21). We carried out the analysis in five stages. At stage 1, we read the transcribed material several times to acquire an overall impression. At stage 2, we identified units of meaning that dealt with the experiences health personnel had with high-energy smoothies for elderly patients in nursing homes. At stage 3, we abbreviated the units of meaning but retained the essence of the text content. At stage 4, we codified the condensed units of meaning, basing the comparison on similarities and differences.

Then we categorised them according to different topics. At stage 5, we read the text relating to each topic carefully. The text was then critically analysed, compared and abstracted. Finally, we formulated five topics and six sub-topics (21). In order to ensure the credibility of the process of analysis, we discussed text content and how this could be understood and interpreted (21).

Results

The findings of the analysis of the focus group interviews can be summarised under five topics, two of which have sub-topics:

- Individual reactions
 - Digestive problems
 - Nausea
- Individual adaptation
 - Addition of nutrients
 - Individual food and drink lists
 - Some patients get fed up of smoothies
 - Some patients like smoothies
- More fruit with smoothies
- Those who were undernourished did not gain weight
- Smoothies give energy

Individual reactions

Digestive problems

The analysis revealed that some patients became obstipated while others experienced heartburn. This is illustrated by the following statements:

‘There was a long article in the paper when we started with this, and it said that the fibres are destroyed in smoothies, whereas if you eat a pear whole, for example, your gut functions much better, so you think a bit about that, and they get fruit during the day.’

‘One patient had heartburn, she didn’t tolerate them.’

Nausea

Smoothies made some patients nauseous, but it was uncertain whether this was due to the sugar, the cream or the oil that had been added. Two informants described this as follows:

‘Some people felt a bit sick.’

«Too much sugar, oil and cream – a lot of people found that sickening.»

Informant

‘It wasn’t always a success. Too much sugar, oil and cream, a lot of people found that sickening.’

Individual adaptation

Addition of nutrients

Several informants pointed out that the smoothies were gradually adapted to the individual patient:

‘At the start, it seemed very rigid, and you were meant to comply with all of this. You had your own experiences, and of course not everyone liked this [the smoothie], there should have been more flexibility.’

‘Because there were many smoothie recipes, and I think it’s important to get enough vitamins. We all need them.’

According to several informants, different nutrients were added to the smoothie:

‘If the bananas are going off, we chuck in a few of them or some other kind of fruit, and also if we find fruit we’ve forgotten about.’

‘... a lot of yoghurt, milk and cream, juice and frozen fruit, and a lot of sugar and a little ice cream.’

‘Some people wanted to add egg yolks as well.’

Individual food and drink lists

Two of the informants pointed out the need for individual food and drink lists in order to document what nutrients the individual patient ingested and the number of calories:

‘What I find a bit difficult about this is that we don’t actually know what they were consuming. How many calories, how much energy and how many nutrients are there in fact in what we’re going to give them; we didn’t know that. It would be a different story if someone had noted that today the patient received so and so many millilitres of that type.’

‘Nothing was written down when you followed a recipe, but that’s what would have been interesting because then you could have seen the result. If you noted down what you had given the patient, so much sugar, that means that he would be rearranging the furniture afterwards. If you had only a little, it would be absolutely fine.’

Some patients get fed up of smoothies

Several statements indicated that the patients got fed up of smoothies. Reducing this from every evening to two days a week would give room for variation. Two of the informants regarded it in this way:

‘And we also find that some people say, “Oh, are you coming already with that again?”, so then I thought, we can’t have this too often, we need to have a break.’

‘I think they got fed up of it, and maybe it would be best to have it twice a week so they don’t have to taste the same thing all the time.’

Some patients like smoothies

Some informants said that individual patients really liked smoothies. Two statements exemplify this:

‘Some nutritious drinks were so good. We have a patient who’s 103, she wiped the glass with her finger and then licked it.’

«Some nutritious drinks were so good. We have a patient who’s 103, she wiped the glass with her finger and then licked it.»

Informant

‘There was one patient in particular, she praised it to the skies. Preferably every evening, the best thing she’d tasted. Then we offered her a little more, if there was anything left, and she would say, “Yes, please, yes”.

More fruit with smoothies

The informants were not sure whether patients consumed more fruit with the smoothie. Three informants described this as follows:

‘Whether it’s in the smoothie or in other fruit, the total amount is the same, because we’ve always had a strong focus on fruit and vegetables.’

‘... but at the same time I think there’s more fruit in the smoothie compared with the fruit they would get in the evening anyway.’

‘I’m sure they consume more, because of course not everyone can eat fruit.’

Patients who were undernourished did not gain weight

Several informants had experienced that patients who were undernourished did not gain weight. The following examples illustrate this:

‘[It was] exciting to observe whether undernourished patients gained weight on account of the smoothie, but they didn’t. It’s the nature of their illness.’

‘I can’t remember that there was a change in weight.’

‘The lady who’s 103–104, she’s more poorly, but that’s because of age and a reduced appetite.’

Smoothies give energy

Several of the informants believed that smoothies gave the patients extra energy:

‘Some really got going after getting smoothies, some had a real burst of energy.’

‘It must have been him who started to rearrange the furniture after 20 minutes. It’s quite amazing, I think. Without fail, after 20 minutes he began to get restless, and after a while he got other things and we saw that he calmed down, and we found out the reason. This was very typical after 20 minutes.’

‘[They should] get smoothies during the daytime instead [of in the evening and at night]. It’s simply an energy bomb, they become more active because they get so much energy.’

Discussion

The objective of this study was to explore the experiences of health personnel in relation to high-energy smoothies for elderly patients in nursing homes. The analysis revealed that not everyone tolerated the smoothie. Some had heartburn, some became obstipated while yet others felt nauseous. It was anticipated that some would have heartburn, since juice was added to the smoothie and this can give hyperacidity and a burning sensation in the lower part of the oesophagus (5, 22). An interesting finding was that some patients became obstipated. When fruit and berries are puréed in the blender, they are cut into small pieces, and the fibres are destroyed (23), increasing the risk of obstipation (13).

According to earlier research, it is important that elderly people get sufficient fibre to prevent them from becoming obstipated (24, 25). Some informants resolved this by providing fruit during the day. Another way of preventing obstipation is to add vegetables to the smoothie. Vegetables contain more fibre that is not destroyed in the blender, thereby promoting increased bowel movement and nourishing the good gut bacteria (26, 27).

Additives can cause nausea

According to the informants, on some occasions sugar, cream and oil were added to the smoothie, and some of our informants were of the opinion that this could make the patients feel nauseous. This assumption is in accordance with an earlier study of patients with diabetes. The study reports that those who had elevated blood sugar levels became nauseous (28). The nausea experienced may also be due to elderly people having a reduced production of bile, lipase and digestive enzymes (29), which results in lowered fat tolerance and nausea (30).

The analyses showed that those who were undernourished did not gain weight. According to the informants, this might be due to age, underlying illness or diminished appetite. For those with underlying illness or diminished appetite, it may be wise to add nutrients to the smoothies in line with individual needs (9, 31, 32). Based on the findings of our study and earlier studies (9, 31, 32), individual adaptation of the smoothie is important, so that individual needs for energy and nutrients are satisfied.

Difficult to document nutrient intake

Some informants felt that the smoothie gave the patients energy, and that some of them became active as a result. It was anticipated that a few patients would become active, since the smoothie that they received had added sugar (10). Due to the addition of sugar, some of the informants were of the opinion that it would be better to give the patients smoothies during the day.

«Some informants felt that the smoothie gave the patients energy, and that some of them became active as a result.»

Moreover, the informants also pointed out that they found it difficult to know what nutrients and fluids patients consumed when everything was mixed together in the blender and recipes were not always followed. The informants therefore wanted the content and amount of smoothies to be recorded and documented in each case so that they had control of how much energy, nutrition and fluids the individual patient received. Documentation of food and drink is in accordance with national guidelines intended to ensure that nursing homes have systems to document patients' nutritional status and risk of undernutrition (1, 5).

Can increase fruit intake

There were differing views among the informants about whether the patients consumed as much or more fruit and berries during the pilot project as they did before it started. Some believed that the patients consumed more fruit with smoothies, while others thought that they consumed as much fruit as before the start of the pilot project. An earlier study (33) shows that 4 per cent of children who ate breakfast also ate fruit, but when the school offered smoothies, the intake of fruit increased to 45 per cent. Although the study (33) was conducted on schoolchildren, its findings may possibly have transfer value to elderly patients in nursing homes.

Another study also shows that those who have regular access to smoothies are more able to consume enough fruit in comparison to those who do not have regular access to smoothies (15). Based on earlier studies and the findings in this study, there is reason to believe that the patients had an increased intake of fruit in connection with the pilot project.

Strengths and weaknesses of the study

A strength of our study is that we chose focus group interviews. Experiences and opinions that the participants shared in the group discussions can thus promote new reflections and thoughts that they can apply in their own practice (20).

The interviewer has a first degree in nursing education and further education in nutrition. This competence is a source of knowledge and understanding when asking follow-up questions (34). A limitation may be that this prior knowledge may have resulted in biased attitudes, and curbed the interviewer's curiosity regarding the participants' perceptions when the questions were asked (34). The interviewer was aware of this problem and endeavoured to ensure that her own knowledge, experiences and perceptions did not influence the interview situation, so that informants could relate their experiences freely.

A weakness of the study may be that only health personnel who worked during the day and in the evening were included in the study. The reason was that it proved difficult to recruit participants who worked during the night. Two of the focus groups were homogenous, and consisted of health workers, while one was less homogenous and consisted of nurses, social educators and health workers.

Some scholars recommend that focus groups should be homogeneous, since heterogeneous groups where participants have different educational backgrounds and work experience can lead to ranking of the participants, which may hamper discussion in the group (20, 35). According to Malterud (20) on the other hand, the aim of homogeneity must be balanced against variation in the participants, both within each group and among all the participants, since diversity of experience may create nuances in the empirical data. In one of the groups, which consisted of nurses, social educators and health workers, two people withdrew. The perception of ranking may have been the reason for this.

Conclusion

The objective of this study was to explore the experiences of health personnel with high-energy smoothies for elderly patients in nursing homes. The findings show that some patients had problems with heartburn, nausea and constipation. Moreover, it was revealed that those who were undernourished did not gain weight because of smoothies, and that smoothies gave the patients energy and led to some of them becoming overactive. Individual adaptation of smoothies for elderly patients in nursing homes is necessary, so that the wishes and needs of the individual patient can be safeguarded. In order to control the individual patient's intake of fluids, nutrients and energy, individual nutrition and drink lists are required.

References

1. Guthormsen A, Hensrud A, Irtun Ø, Mowé M, Sørby L, Thoresen L et al. Nasjonale faglige retningslinjer for forebygging og behandling av underernæring. Oslo: Helsedirektoratet; 2013. Available at: <https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/916/Nasjonal-faglig-retningslinje-for-forebygging-og-behandling-av-underertering-IS-1580.pdf>(downloaded 17.08.2017).
2. Gammersvik Å og Larsen T. Helsefremmende sykepleie – i teori og praksis. Bergen: Fagbokforlaget; 2012.
3. Mowé M. Behandling av underernæring hos eldre pasienter. Tidsskrift for Den norske legeförening 2002;122:815–8.

4. Mowé M, Bøhmer T. Reduced appetite. A predictor for undernutrition in aged people. *J Nutr Health Aging* 2002;6:81–3.
5. Arsky G, Arntzen R, Berg O, Bjørnstad E, Brantsæter A, Bye A et al. *Kosthåndboken – Veileder i ernæringsarbeid i helse- og omsorgstjenesten*. Oslo: Helsedirektoratet, 2012. Available at: <https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/51/Kosthaandboken-IS-1972.pdf#page=3>(downloaded 22.08.2016)
6. Helsedirektoratet. Ernæringskompetanse i helse- og omsorgssektoren. Oppdrag fra Helse og omsorgsdepartementet 2009-2012. Oslo: Helsedirektoratet, 2012. Available at: <https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/41/Erneringskompetanse-i-helse-og-omsorgstjenesten-oppdrag-fra-helse-og-omsorgsdepartementet-2009-2012-IS-2032.pdf>(downloaded 01.09.2016).
7. Eide H, Aukner C, Iversen P. Nutritional status and duration of overnight fast among elderly residents in municipal nursing homes in Oslo. *Vård i Norden* 2012;32(1):20–4.
8. Mowé M, Bøhmer T. Reduced appetite. A predictor for undernutrition in aged people. *J Nutr Health Aging* 2006;6:81–3.
9. Sortland K, Skjegstad G, Jansen L, Berglund A. Eldre personers ernæring og matinntak ved et sykehjem – en pilotstudie. *Vård i Norden* 2009;29:25–9.
10. Aagaard H. Mat og måltider i sykehjem. En nasjonal kartleggingsundersøkelse. *Sykepleien Forskning* 2010;4:36–43. Available at: <https://sykepleien.no/forskning/2010/03/mat-og-maltider-i-sykehjem-en-nasjonal-kartleggingsundersokelse>(downloaded 17.08.2017).
11. Söderhamn U, Söderhamn O. A successful way for performing nutritional nursing assessment in older patients. *J Clin Nurs* 2009;18:431–9.
12. Leirvik Å, Høye S, Kvigne K. Mat, måltider og ernæring på sykehjem – erfaringer fra et aksjonsforskningsprosjekt. *Nordisk Sygeplejeforskning* 2016;6:178–97.
13. Bondevik M, Nygaard H. *Tverrfaglig geriatri*. Bergen: Fagbokforlaget; 2012.
14. Mowé M. Kan ernæring forebygge eller dempe utvikling av Alzheimers sykdom? *Demens & Alderspsykiatri* 2008;12:24–7.

15. Ruxton C. Smoothies: one portion or two? *Nutr Bull* 2008;33:129–32.
16. Lorefält B, Wilhelmsson S. A multifaceted intervention model can give a lasting improvement of older peoples nutritional status. *The J Nutr Health and Aging* 2012;16:378–82.
17. Crocker P. *Juicing and smoothies for Dummies*. Toronto: John Wiley and Sons; 2013.
18. Nilsson S. *Nutritionshandbok för personal inom särskilt boende*. Stockholm: Studentlitteratur; 2008.
19. St.meld. 34 (2012–2013): Folkehelsemeldingen: God helse – felles ansvar. Oslo: Helse- og omsorgsdepartementet; 2013. Available at: <https://www.regjeringen.no/contentassets/ce1343f7c56f4e74ab2f631885f9e22e/no/pdfs/stm20122013003400odddpdfs.pdf>(downloaded 01.09.2016).
20. Malterud K. *Fokusgrupper som forskningsmetode for medisin og helsefag*. Oslo: Universitetsforlaget; 2012.
21. Graneheim U, Lundman B. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurs Educ Today* 2004;24:105–12.
22. Drevon C, Blomhoff R. *Mat og medisin*. Kristiansand: Høyskoleforlaget; 2012.
23. Parada J, Aguilera J. Food microstructure affects the bioavailability of several nutrients. *J Food Sci Nutr* 2007;72:R21–32.
24. Cruz-Jentoft A, Calvo J, Duran J, Ordonez J, DeCastellar R. Compliance with an oral hyperproteic supplement with fibre in nursing home residents. *J Nutr Health and Aging* 2008;12:669–73.
25. Slavin J, Lloyd B. Health benefits of fruits and vegetables. *Adv Nutr* 2012;3:506–16.
26. Myskja A. *Sannheten om mat*. Oslo: J.M. Stenersens Forlag; 2012.
27. Svihus B. *Spiselig – en fortelling om maten og mennesket*. Oslo: Aschehoug; 2016.

28. Malik V, Popkin B, Bray G. Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes. *Diabetes care* 2010;33:2477–83.
29. Sortland K. Ernæring mer enn mat og drikke. Bergen: Fagbokforlaget; 2012.
30. Nes M, Müller H, Pedersen J. Ernæringslære. Oslo: Gyldendal Akademisk; 2006.
31. Manders M, de Groot C, Blauw Y, Dhonukshe-Rutten R, van Hoeckel-Prust L, Bindels J et al. Effect of a nutrient-enriched drink on dietary intake and nutritional status in institutionalised elderly. *Eur J Clin Nutr* 2009;63:1241–50.
32. Allen V, Methven L, Gosney M. The influence of nutritional supplement drinks on providing adequate calorie and protein intake in older adults with dementia. *J Nutr Health and Aging* 2013;17:752–5.
33. Bates D, Price J. Impact of fruit smoothies on adolescent fruit consumption at school. *Health Educ Behav* 2015;42:487–92.
34. Malterud K. Kvalitative metoder i medisinsk forskning. Oslo: Universitetsforlaget; 2011.
35. Lerdal A, Karlson B. Bruk av fokusgruppeintervju. *Sykepleien Forskning* 2008;03:172–5. Available at: <https://sykepleien.no/forskning/2009/02/bruk-av-fokusgruppeintervju>(downloaded 17.08.2017).